



**Federal Aviation
Administration**

Creating a Thriving Commercial Marketplace in LEO

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**Presentation for the LEO
Commercialization Workshop**

December 10-11, 2014



50 Years of Human Spaceflight



Recent Presidential Commissions on Space

- Commission on the Future of the United States Aerospace Industry (Walker Commission) - 2002
- Aldridge Commission - 2004
- Augustine Committee - 2009

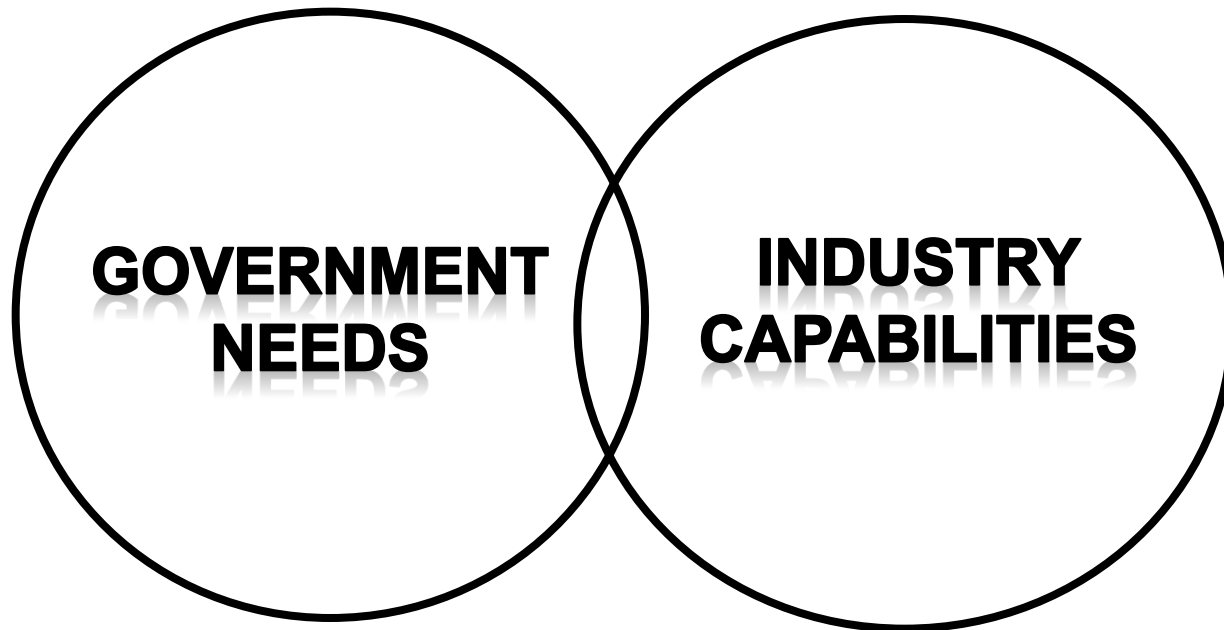
All called for increased reliance on private industry.

National Space Policy



“A robust and competitive commercial space sector is vital to continued progress in space. The United States is committed to encouraging and facilitating the growth of a U.S. commercial space sector that supports U.S. needs, is globally competitive, and advances U.S. leadership in the generation of new markets and innovation-driven entrepreneurship.”

An Opportunity for Progress

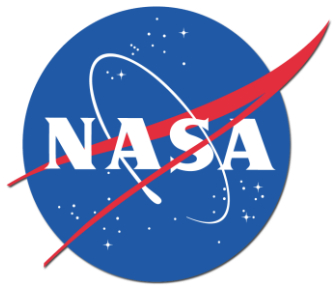


What Government Brings to the Table

- Expertise
- Experience
- A continuing need for space products and services

What Industry Brings to the Table

- The potential for lower cost
- The potential for increased innovation
- The potential for greater risk tolerance
- The potential for new customers and new markets
- The potential for new sources of funding



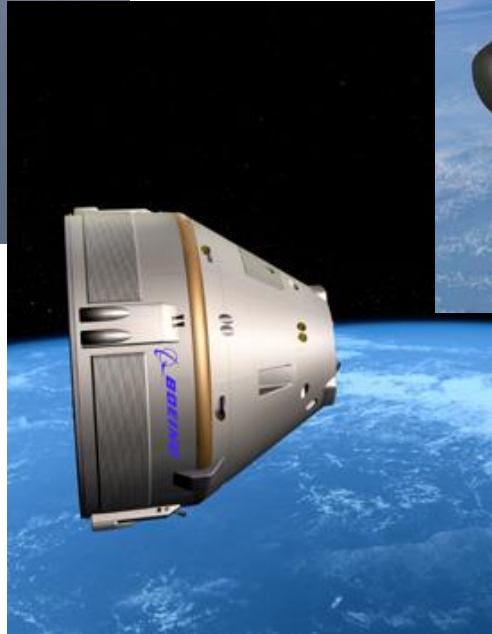
Commercial Cargo Program



Commercial Crew Program



SpaceX

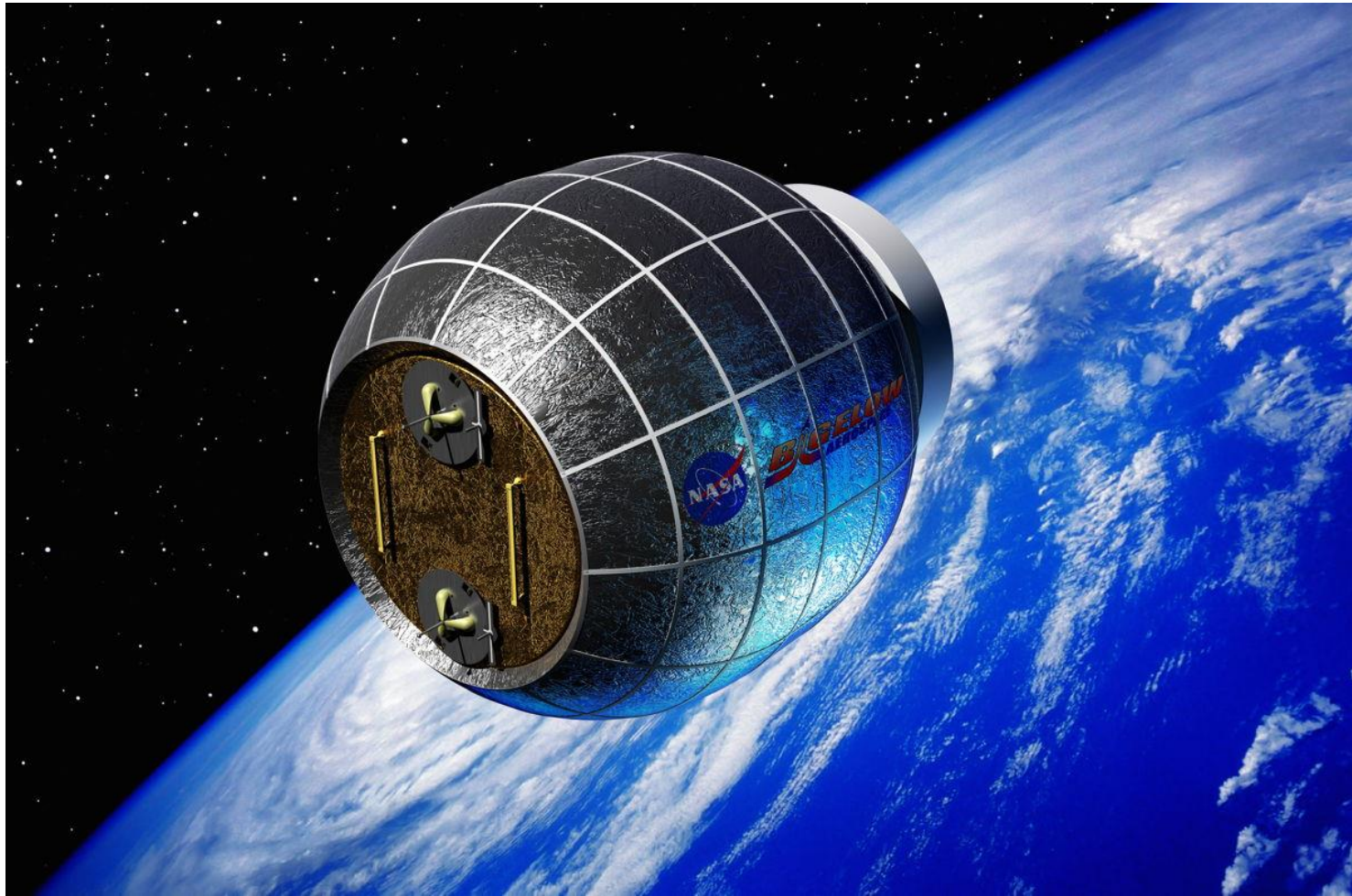


Boeing



Sierra Nevada Corporation

Bigelow Expandable Activity Module



Some Potential Markets

- Satellite Servicing
- In-Space Transportation (Space Tugs)
- Commercial Habitats and/or Space Stations
- Propellant Depots
- Space-Based Solar Power Generation

Regulatory Issues

- Outer Space Treaty - Article VI
 - “The activities of non-governmental entities in outer space ... shall require authorization and continuing supervision by the appropriate State Party to the Treaty.”
- Third Party Safety Questions
 - Collision Avoidance
 - Mitigation of Orbital Debris
- Utilization of Space Resources
 - Property Rights
 - De-confliction to avoid harmful interference

Financial Issues

- How can the government incentivize private investment?
 - Sponsoring research
 - Offering prizes
 - Offering tax incentives
 - Helping to pay for the development of new capabilities
 - Making a commitment to purchase services
- The Commercial Orbital Transportation Services (COTS) program could be a model for the development of other new markets

Final Thoughts

- At some point in the future, there will be a wide range of commercial space activities in LEO, regardless of what the government decides to do today.
- However, the federal government, through its policies, partnerships, and investments, can positively influence and significantly greatly accelerate the timing of those activities.
- Many of the activities can be “Beta Tested” on, or in conjunction with, the ISS. Others would be “stand-alone.”
- The FAA is eager to work with NASA, and with industry, to encourage, facilitate, and promote the new activities.